

What is claimed is:

1. A termination unit for use in a digital subscriber line system, comprising:
a first communication interface adapted for receiving first traffic having a
bandwidth;
a second communication interface adapted for receiving second traffic different
from the first traffic; and
a third communication interface for coupling to a digital subscriber line;
wherein the termination unit is adapted to combine the first traffic received at the
first communication interface with the second traffic received at the second
communication interface, thereby generating a combined traffic, and to
provide the combined traffic to the third communication interface; and
wherein the combined traffic has a bandwidth greater than or equal to the
bandwidth of the first traffic.
2. The termination unit of claim 1, wherein the second traffic is unframed.
3. The termination unit of claim 2, wherein the first traffic is framed.
4. The termination unit of claim 3, wherein the combined traffic is framed when the
first traffic has a non-zero bandwidth and is unframed when the first traffic has a
zero bandwidth.
5. The termination unit of claim 1, wherein the first communication interface is a
G.703/704 interface.
6. The termination unit of claim 1, wherein the second communication interface is an
Nx64Kbps serial dataport interface.

7. The termination unit of claim 1, wherein the third communication interface is a G.shdsl interface.
8. A termination unit for use in a digital subscriber line system, comprising:
 - a first communication interface adapted for receiving first traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number (N_1) of timeslots used for payload is less than or equal to the first number of timeslots;
 - a second communication interface adapted for receiving second traffic, wherein the second traffic has a bit rate equal to some multiple (N_2) of the incremental bit rate; and
 - a third communication interface for coupling to a digital subscriber line and for providing a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to $N_1 + N_2$;wherein the termination unit is adapted to map the timeslots of the first traffic to a first portion of the timeslots of the combined traffic;
wherein the termination unit is adapted to map the second traffic to a second portion of the timeslots of the combined traffic.
9. The termination unit of claim 8, wherein the first portion of timeslots has a number of timeslots less than or equal to the first number of timeslots and greater than or equal to N_1 .
10. The termination unit of claim 8, wherein the first portion of the timeslots of the combined traffic begins at a first timeslot of the combined traffic.
11. The termination unit of claim 8, wherein the payload of the first traffic begins at the first timeslot of the combined traffic when N_1 is equal to the first number of timeslots.

12. The termination unit of claim 11, wherein the second portion of the timeslots of the combined traffic begins at an N_I th + 1 timeslot when N_I is equal to the first number of timeslots.
13. The termination unit of claim 10, wherein the payload of the first traffic begins at a second timeslot of the combined traffic when N_I is less than the first number of timeslots.
14. The termination unit of claim 13, wherein the first timeslot of the combined traffic corresponds to framing information.
15. The termination unit of claim 8, wherein the first portion of the timeslots is contiguous.
16. The termination unit of claim 8, wherein N_I is less than the first number of timeslots and wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for at least $N_I + 1$ timeslots of the first traffic.
17. The termination unit of claim 16, wherein one timeslot of the first traffic is mapped to a timeslot of the combined traffic other than its corresponding timeslot.
18. The termination unit of claim 17, wherein the one timeslot corresponds to signaling information.
19. The termination unit of claim 16, wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for $N_I + 2$ timeslots of the first traffic.

20. The termination unit of claim 8, wherein N_1 is equal to the first number of timeslots and wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for each timeslot of the first traffic.
21. The termination unit of claim 8, wherein the first traffic is E1 traffic having 32 timeslots (0-31), wherein timeslot 0 of the first traffic corresponds to framing information and wherein timeslot 16 of the first traffic corresponds to signaling information.
22. The termination unit of claim 21, wherein the combined traffic is SHDSL traffic having 36 timeslots (0-35), wherein timeslot 0 of the combined traffic corresponds to timeslot 0 of the first traffic, and wherein timeslot 16 of the combined traffic corresponds to timeslot 16 of the first traffic when N_1 is less than or equal to 30 and greater than or equal to 15.
23. The termination unit of claim 22, wherein timeslot 16 of the combined traffic further corresponds to timeslot 16 of the first traffic when N_1 is less than 15 if $N_1 + N_2$ is greater than or equal to 15.
24. The termination unit of claim 22, wherein timeslot 16 of the first traffic corresponds to timeslot $N_1 + N_2 + 1$ of the combined traffic when N_1 is greater than or equal to 1 and $N_1 + N_2$ is less than or equal to 15.
25. A termination unit for use in a digital subscriber line system, comprising:
a first communication interface adapted for receiving pulse code modulated voice traffic and/or packetized data traffic having a first number of timeslots, each timeslot corresponding to an incremental bit rate, wherein a number (N_1) of timeslots used for payload is less than or equal to the first number of timeslots;

a second communication interface adapted for receiving serial data traffic, wherein the serial data traffic has a bit rate equal to some multiple (N_2) of the incremental bit rate; and

a third communication interface for coupling to a single-pair high bit-rate digital subscriber line and for providing a combined traffic having a second number of timeslots, each timeslot corresponding to the incremental bit rate, wherein the second number of timeslots is greater than or equal to $N_1 + N_2$;

wherein the termination unit is adapted to map the timeslots of the pulse code modulated voice traffic and/or packetized data traffic to a first portion of the timeslots of the combined traffic;

wherein the termination unit is adapted to map the serial data traffic to a second portion of the timeslots of the combined traffic.

26. The termination unit of claim 25, further comprising:
- wherein the first communication interface is a G.703/704 interface;
- wherein the second communication interface is an Nx64Kbps serial dataport interface;
- wherein the incremental bit rate is 64Kbps;
- wherein the first number of timeslots equals 32 (timeslots 0-31); and
- wherein the second number of timeslots is less than or equal to 36 (timeslots 0-35).
27. The termination unit of claim 26, wherein the Nx64Kbps serial dataport interface is selected from the group consisting of a V.35 interface, a V.36 interface, an X.21 interface and an RS-530 interface.
28. The termination unit of claim 26, further comprising:
- wherein the termination unit is adapted to map timeslot 0 of the pulse code modulated voice traffic and/or packetized data traffic to timeslot 0 of the combined traffic;

wherein the termination unit is adapted to map timeslot 16 of the pulse code modulated voice traffic and/or packetized data traffic to timeslot 16 of the combined traffic if $N_1 + N_2$ is greater than or equal to 15;

wherein the termination unit is adapted to map timeslot 16 of the pulse code modulated voice traffic and/or packetized data traffic to timeslot ($N_1 + N_2 + 1$) of the combined traffic if $N_1 + N_2$ is less than 15;

wherein the termination unit is adapted to map remaining timeslots of the pulse code modulated voice traffic and/or packetized data traffic to corresponding timeslots of the combined traffic;

wherein the termination unit is adapted to map the serial data traffic to timeslots of the combined traffic beginning at timeslot ($N_1 + 1$) when N_1 is less than 15;

wherein the termination unit is adapted to map the serial data traffic to timeslots of the combined traffic beginning at timeslot ($N_1 + 2$) when N_1 is greater than or equal to 15; and

wherein mapping of the serial data traffic skips timeslot 16 of the combined traffic when N_1 is less than 15 and $N_1 + N_2$ is greater than or equal to 15.

29. A method of communicating across a digital subscriber line system, comprising:
 - receiving a first traffic having a bandwidth;
 - receiving a second traffic different from the first traffic and concurrently with the first traffic;
 - combining data of the first traffic with the data of the second traffic, thereby generating a combined traffic; and
 - providing the combined traffic to a digital subscriber line of the digital subscriber line system.
30. The method of claim 29, wherein the second traffic is unframed.
31. The method of claim 30, wherein the first traffic is framed.

32. The method of claim 31, wherein the combined traffic is framed when the first traffic has a non-zero bandwidth and is unframed when the first traffic has a zero bandwidth.
33. The method of claim 29, wherein the first traffic is E1 traffic.
34. The method of claim 29, wherein the second traffic is serial data.
35. The method of claim 29, wherein the digital subscriber line is a single-pair high bit-rate digital subscriber line.
36. A method of communicating across a digital subscriber line system, comprising:
receiving first traffic having a first number of timeslots, each timeslot
corresponding to an incremental bit rate, wherein a number (N_1) of
timeslots used for payload is less than or equal to the first number of
timeslots;
receiving second traffic, wherein the second traffic has a bit rate equal to some
multiple (N_2) of the incremental bit rate;
combining the first traffic and the second traffic to generate a combined traffic
having a second number of timeslots, each timeslot corresponding to the
incremental bit rate, wherein the second number of timeslots is greater than
or equal to $N_1 + N_2$;
mapping the timeslots of the first traffic to a first portion of the timeslots of the
combined traffic; and
mapping the second traffic to a second portion of the timeslots of the combined
traffic.
37. The method of claim 36, wherein the first portion of timeslots has a number of
timeslots less than or equal to the first number of timeslots and greater than or
equal to N_1 .

38. The method of claim 36, wherein the first portion of the timeslots of the combined traffic begins at a first timeslot of the combined traffic.
39. The method of claim 36, wherein the payload of the first traffic begins at the first timeslot of the combined traffic when N_I is equal to the first number of timeslots.
40. The method of claim 39, wherein the second portion of the timeslots of the combined traffic begins at an N_I th + 1 timeslot when N_I is equal to the first number of timeslots.
41. The method of claim 38, wherein the payload of the first traffic begins at a second timeslot of the combined traffic when N_I is less than the first number of timeslots.
42. The method of claim 41, wherein the first timeslot of the combined traffic corresponds to framing information.
43. The method of claim 36, wherein the first portion of the timeslots is contiguous.
44. The method of claim 36, wherein N_I is less than the first number of timeslots and wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for at least $N_I + 1$ timeslots of the first traffic.
45. The method of claim 44, wherein one timeslot of the first traffic is mapped to a timeslot of the combined traffic other than its corresponding timeslot.
46. The method of claim 45, wherein the one timeslot corresponds to signaling information.

47. The method of claim 44, wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for $N_1 + 2$ timeslots of the first traffic.
48. The method of claim 36, wherein N is equal to the first number of timeslots and wherein a timeslot of the first traffic is mapped to its corresponding timeslot of the combined traffic for each timeslot of the first traffic.
49. The method of claim 36, wherein the first traffic is E1 traffic having 32 timeslots (0-31), wherein timeslot 0 of the first traffic corresponds to framing information and wherein timeslot 16 of the first traffic corresponds to signaling information.
50. The method of claim 49, wherein the combined traffic is SHDSL traffic having 36 timeslots (0-35), wherein timeslot 0 of the combined traffic corresponds to timeslot 0 of the first traffic, and wherein timeslot 16 of the combined traffic corresponds to timeslot 16 of the first traffic when N_1 is less than or equal to 30 and greater than or equal to 15.
51. The method of claim 50, wherein timeslot 16 of the combined traffic further corresponds to timeslot 16 of the first traffic when N_1 is less than 15 if $N_1 + N_2$ is greater than or equal to 15.
52. The method of claim 50, wherein timeslot 16 of the first traffic corresponds to timeslot $N_1 + N_2 + 1$ of the combined traffic when N_1 is greater than or equal to 1 and $N_1 + N_2$ is less than or equal to 15.